American Journal of Physiology: Cell Physiology

No. 1. JANUARY 1994

INVITED REVIEW

Biological applications of atomic force microscopy R. Lal and S. A. John	C1
Identification of an endothelial-like type III NO synthase in LLC-PK $_1$ kidney epithelial cells	
W. R. Tracey, J. S. Pollock, F. Murad, M. Nakane, and U. Förstermann	C22
Impaired cardiac function in rats with healed myocardial infarction: cellular vs. myocardial mechanisms J. Y. Cheung, T. I. Musch, H. Misawa, A. Semanchick, M. Elensky,	
R. V. Yelamarty, and R. L. Moore	C29
Effect of Na_{pip} on K_o activation of the Na-K pump in adult rat cardiac myocytes $T.\ A.\ Kinard,\ XY.\ Liu,\ S.\ Liu,\ and\ J.\ R.\ Stimers$	C37
Choline chloride activates time-dependent and time-independent K ⁺ currents in dog atrial myocytes B. Fermini and S. Nattel	C42
	042
Apically and basolaterally internalized aminogly cosides colocalize in LLC-PK $_1$ lysosomes and alter cell function	
D. M. Ford, R. H. Dahl, C. A. Lamp, and B. A. Molitoris	C52
Characteristics and regulation of a muscarinically activated K current in HSG-PA cells K. T. Izutsu, S. Fatherazi, R. B. Wellner, J. Herrington, C. M. Belton, and D. Oda	C58
Dihydropyridine-sensitive initial component of the ANG II-induced Ca ²⁺ response in rat adrenal glomerulosa cells	000
L. Hunyady, T. Rohács, A. Bagó, F. Deák, and A. Spät	C67
pH, morphology, and diffusion in lateral intercellular spaces of epithelial cell monolayers P. J. Harris, JY. Chatton, P. H. Tran, P. M. Bungay, and K. R. Spring	C73
Acidification of three types of liver endocytic vesicles: similarities and differences $R.\ W.\ Van\ Dyke\ and\ J.\ D.\ Belcher$	C81
K-Cl cotransport, pH, and role of Mg in volume-clamped low-K sheep erythrocytes: three equilibrium states	-
P. K. Lauf, A. Erdmann, and N. C. Adragna	C95
Cl $^-$ regulation of a Ca $^{2+}$ -activated nonselective cation channel in β -agonist-treated fetal distal lung epithelium	
H. Tohda, J. K. Foskett, H. O'Brodovich, and Y. Marunaka	C104
Na ⁺ -H ⁺ antiporter activity in relation to membrane fatty acid composition and cell proliferation J. Goré, P. Besson, C. Hoinard, and P. Bougnoux	C110
Permeability properties of rat renal lysosomes	OII
AI. Piqueras, M. Somers, T. G. Hammond, K. Strange, H. W. Harris, Jr., M. Gawryl, and M. L. Zeidel	C121
Involvement of protein kinase C in macrophage activation by $poly(I \cdot C)$ F. R. Lake, E. C. Dempsey, J. D. Spahn, and D. W. H. Riches	C134
Effects of orchiectomy on EDL muscle ultrastructure and energy-supplying enzymes in growing male guinea pigs B. Beaune, N. Fellmann, F. Villié, M. Marcollet, and J. Coudert	C143
Functional CFTR in endosomal compartment of CFTR-expressing fibroblasts and	0140
T84 cells J. Biwersi and A. S. Verkman	C149

Polyadenylation of Na ⁺ -K ⁺ -ATPase β ₁ -subunit during early development of Xenopus laevis	
P. Burgener-Kairuz, I. Corthesy-Theulaz, AM. Merillat, P. Good, K. Geering, and B. C. Rossier	C157
Regulatory volume decrease in cultured astrocytes. I. Potassium- and chloride-activated permeability H. Pasantes-Morales, R. A. Murray, L. Lilja, and J. Morán	C165
Regulatory volume decrease in cultured astrocytes. II. Permeability pathway to amino	
acids and polyols H. Pasantes-Morales, R. A. Murray, R. Sánchez-Olea, and J. Morán	C172
Hydroperoxide-induced oxidative stress impairs heart muscle cell carbohydrate metabolism D. R. Janero, D. Hreniuk, and H. M. Sharif	C179
Expression, functional analysis, and in situ hybridization of a cloned rat kidney	0110
collecting duct water channel T. Ma, H. Hasegawa, W. R. Skach, A. Frigeri, and A. S. Verkman	C189
Inhibition of Na ⁺ -K ⁺ -ATPase activates Na ⁺ -K ⁺ -2Cl ⁻ cotransporter activity in cultured	
ciliary epithelium J. Dong, N. A. Delamere, and M. Coca-Prados	C198
Basic FGF activates phospholipase D in endothelial cells in the absence of	0100
inositol-lipid hydrolysis A. Ahmed, R. Plevin, M. A. Shoaibi, S. A. Fountain, R. A. Ferriani, and S. K. Smith	C206
CFTR and calcium-activated chloride currents in pancreatic duct cells of a transgenic	
CF mouse M. A. Gray, J. P. Winpenny, D. J. Porteous, J. R. Dorin, and B. E. Argent	C213
Regulation of intracellular free Mg ²⁺ and contraction in single adult mammalian	0210
cardiac myocytes H. S. Silverman, F. Di Lisa, R. C. Hui, H. Miyata, S. J. Sollott, R. G. Hansford, E. G. Lakatta, and M. D. Stern	C222
Na ⁺ -Ca ²⁺ exchanger in arteries: identification by immunoblotting and	
immunofluorescence microscopy M. Juhaszova, A. Ambesi, G. E. Lindenmayer, R. J. Bloch, and M. P. Blaustein	C234
${\bf Epidermis\ contains\ platelet-type\ 12-lipoxygen ase\ that\ is\ overexpressed\ in\ germinal\ layer}$	
keratinocytes in psoriasis H. Hussain, L. P. Shornick, V. R. Shannon, J. D. Wilson, C. D. Funk, A. P. Pentland, and M. J. Holtzman	C243
Polarization-dependent apical membrane CFTR targeting underlies cAMP-stimulated Clasecretion in epithelial cells	
A. P. Morris, S. A. Cunningham, A. Tousson, D. J. Benos, and R. A. Frizzell	C254
PGE_2 : a mediator of corneal endothelial wound repair in vitro $N.\ C.\ Joyce\ and\ B.\ Meklir$	C269
Ca ²⁺ stores in smooth muscle cells: Ca ²⁺ buffering and coupling to AVP-evoked inositol	
phosphate synthesis D. M. Berman, T. Sugivama, and W. F. Goldman	C276
Characterization of the endogenous Na ⁺ -K ⁺ -2Cl ⁻ cotransporter in <i>Xenopus</i> oocytes	0210
W. Suvitayavat, H. Č. Palfrey, M. Haas, P. B. Dunham, F. Kalmar, and M. C. Rao	C284
MODELING IN PHYSIOLOGY	
A model for the propagation of intercellular calcium waves J. Sneyd, A. C. Charles, and M. J. Sanderson	C293
SPECIAL COMMUNICATION	
A confocal laser scanning microscope designed for indicators with ultraviolet	
excitation wavelengths F. Niggli, D. W. Pieton, M. S. Kirky, H. Chang, D. P. Sandison, W. W. Walle	

E. Niggli, D. W. Piston, M. S. Kirby, H. Cheng, D. R. Sandison, W. W. Webb, and W. J. Lederer

C303

RAPID COMMUNICATION

- Increased intracellular Na⁺ augments mobilization of Ca²⁺ from SR in vascular smooth muscle cells
 - M. L. Borin, R. M. Tribe, and M. P. Blaustein

No. 2. FEBRUARY 1994

INVITED REVIEW

- The insulin receptor: structure, function, and signaling
 - J. Lee and P. F. Pilch

C319

C406

C311

- Muscarinic cholinergic receptor subtypes in rat sublingual glands

 G. E. Watson and D. J. Culp

 C335
- Identification of a sorbitol permease in human erythrocytes
 G. R. Kracke, G. G. Preston, and T. H. Stanley

 C343
- Human rsk isoforms: cloning and characterization of tissue-specific expression

 D. E. Moller, C.-H. Xia, W. Tang, A. X. Zhu, and M. Jakubowski

 C351
- Heterologous expression of $\Delta F508$ CFTR results in decreased sialylation of membrane glycoconjugates

 A. Dosanjh, W. Lencer, D. Brown, D. A. Ausiello, and J. L. Stow

 C360
- Human kidney proximal tubules are the main source of plasma glutathione peroxidase N. Avissar, D. B. Ornt, Y. Yagil, S. Horowitz, R. H. Watkins, E. A. Kerl,
- K. Takahashi, I. S. Palmer, and H. J. Cohen C367 Soluble $\alpha_{\nu}\beta_3$ -integrin ligands raise [Ca²⁺], in rat osteoclasts and mouse-derived osteoclast-like cells
 - Z. Zimolo, G. Wesolowski, H. Tanaka, J. L. Hyman, J. R. Hoyer, and G. A. Rodan
- Augmented expression of cytosolic phospholipase A₂ during phenotypic transformation of cultured type II pneumocytes

 M. Peters-Golden and A. Feyssa

 C382
- Calcium-dependent halothane activation of sarcoplasmic reticulum calcium channels from frog skeletal muscle

 R. Bull and J. J. Marengo

 C391
- Activation of $PtdIns(4,5)P_2$ -sensitive phospholipase C in rabbit tracheal epithelial cells C. M. Liedtke C397
- Calcium-dependent release of arachidonic acid in response to purinergic receptor activation in airway epithelium
- E. R. Lazarowski, R. C. Boucher, and T. K. Harden

 Simultaneous measurement of intracellular Na⁺ and Ca²⁺during K⁺-free perfusion in
- isolated myocytes
 H. Hayashi, H. Satoh, N. Noda, H. Terada, M. Hirano, Y. Yamashita,
 A. Kobayashi, and N. Yamazahi

 C416
- Aldosterone selectively increases Na⁺-K⁺-ATPase α₃-subunit mRNA expression in rat hippocampus

 N. Farman, J.-P. Bonvalet, and J. R. Seckl

 C423
- N. Farman, J.-P. Bonvalet, and J. R. Seckl

 Second messenger specificity of the inositol trisphophate receptor: reappraisal based on
- novel inositol phosphates
 S. DeLisle, T. Radenberg, M. R. Wintermantel, C. Tietz, J. B. Parys,
 D. Pittet, M. J. Welsh, and G. W. Mayr

 C429
- BDM affects nucleotide binding and force generation steps of the cross-bridge cycle in rabbit psoas muscle fibers

 Y. Zhao and M. Kawai

 C437
- Thrombin receptor activation peptide induces pulmonary vasoconstriction

 H. Lum, T. T. Andersen, J. W. Fenton II, and A. B. Malik

 C448

ANNOUNCEMENTS	C578
Voltage-dependent gap junctional conductance in hepatopancreatic cells of Procambarus clarkii M. Chanson, C. Roy, and D. C. Spray	C569
Immunolocalization of anion exchanger AE2 and cation exchanger NHE1 in distinct adjacent cells of gastric mucosa A. Stuart-Tilley, C. Sardet, J. Pouyssegur, M. A. Schwartz, D. Brown, and S. L. Alper	C559
Aldosterone stimulates K secretion prior to onset of Na absorption in guinea pig distal colon D. R. Halm and S. T. Halm	C552
¹⁹ F-NMR study of primary human T lymphocyte activation: effects of mitogen on intracellular pH M. Bental and C. Deutsch	C541
Cl ⁻ current activation in choroid plexus epithelial cells involves a G protein and protein kinase A T. Kotera and P. D. Brown	C536
Regulation of NaCl entry into $Necturus$ gallbladder epithelium by protein kinase C $R.\ Dausch\ and\ K.\ R.\ Spring$	C531
Effects of insulin and exercise on amino acid transport in rat skeletal muscle $P.\ A.\ King$	C524
Cell volume and K^+ transport during differentiation of mouse erythroleukemia cells $\it E. Delpire and S. R. Gullans$	C515
Low pH enhances expression of carbonic anhydrase II by cultured rat inner medullary collecting duct cells G. J. Schwartz, D. Brown, R. Mankus, E. A. Alexander, and J. H. Schwartz	C508
A cytosolic peptide potentiates the GTP effect on β-adrenergic response of adenylate cyclase K. Omori, K. Kitagawa, K. Omori, T. Yasukura, T. Uriu, M. Morita, and C. Inagaki	C498
Intracellular pH recovery during respiratory acidosis in perfused hearts J. I. Vandenberg, J. C. Metcalfe, and A. A. Grace	C489
Enhanced Na ⁺ -H ⁺ exchanger activity and NHE-1 mRNA levels in human lymphocytes during metabolic acidosis B. Quednau, D. Rosskopf, H. P. Reusch, F. C. Luft, and W. Siffert	C480
Characterization of cochlear outer hair cell turgor M. E. Chertoff and W. E. Brownell	C467
High-affinity [³ H]PN200—110 and [³ H]ryanodine binding to rabbit and frog skeletal muscle K. Anderson, A. H. Cohn, and G. Meissner	C462
R. Venerando, G. Miotto, M. Kadowaki, N. Siliprandi, and G. E. Mortimore	C455

No. 3. MARCH 1994

INVITED REVIEW

Analysis of subunit assembly of the Na-K-ATPase	
D. M. Fambrough, M. V. Lemas, M. Hamrick, M. Emerick, K. J. Renaud,	
E. M. Inman, B. Hwang, and K. Takeyasu	C579

C590

pH-dependent multilamellar structures in fetal mouse bone: possible involvement of fatty acids in bone mineralization $T.\ Takahashi,\ S.\ Ueda,\ K.\ Takahashi,\ and\ R.\ O.\ Scow$

Comparison of large-conductance Ca^{2+} -activated K^+ channels in artificial bilayer and patch-clamp experiments	
C. L. Kapicka, A. Carl, M. L. Hall, A. L. Percival, B. W. Frey, and J. L. Kenyon	C601
Phosphorylation of vimentin is an intermediate step in protein kinase C-mediated glycoconjugate secretion F. Bertrand, D. Veissiere, B. Hermelin, A. Paul, J. Capeau, J. Picard,	
and G. Cherqui	C611
ATP-sensitive K ⁺ channel-independent glucose action in rat pancreatic β-cell T. Aizawa, Y. Sato, F. Ishihara, N. Taguchi, M. Komatsu, N. Suzuki, K. Hashizume, and T. Yamada	C622
Role of calcium and calmodulin in flow-induced nitric oxide production in endothelial cells $\it M.J.KuchanandJ.A.Frangos$	C628
Matrix protein regulation of PMN oxidative metabolism during ischemia $H.\ Simms\ and\ R.\ D'Amico$	C637
Characterization of d -tubocurarine binding site of $Torpedo$ acetylcholine receptor $M. E. O'Leary, G. N. Filatov, and M. M. White$	C648
Vasoconstrictive peptides induce endothelin-1 and prostanoids in human cerebromicrovascular endothelium	
M. Spatz, D. Stanimirovic, F. Bacic, S. Uematsu, and R. M. McCarron	C654
Forskolin- but not ionomycin-evoked Cl ⁻ secretion in colonic epithelia depends on intact microtubules C. M. Fuller, R. J. Bridges, and D. J. Benos	C661
Angiotensin II-dependent proximal tubule sodium transport requires	0001
receptor-mediated endocytosis J. R. Schelling and S. L. Linas	C669
Volume regulation in cultured cells derived from human retinal pigment epithelium $B.\ G.\ Kennedy$	C676
Regulation of isotonic shortening velocity by second messengers in tracheal smooth muscle S. J. Gunst, M. H. Al-Hassani, and L. P. Adam	C684
Receptor- and phorbol ester-mediated phospholipase D activation in rat parotid involves	0004
two different pathways I. Guillemain and B. Rossignol	C692
Measurement and characterization of free radical generation in reoxygenated human endothelial cells	CHOO
J. L. Zweier, P. Kuppusamy, S. Thompson-Gorman, D. Klunk, and G. A. Lutty	C700
A background sodium conductance is necessary for spontaneous depolarizations in rat pituitary cell line GH_3 S. M. Simasko	C709
Free radicals uncouple the sodium pump in pig coronary artery A. B. Elmoselhi, A. Butcher, S. E. Samson, and A. K. Grover	C720
Mineralocorticoid and glucocorticoid receptor steroid binding and localization in colonic cells	
G. Schulman, N. M. Robertson, I. B. Elfenbein, D. Eneanya, G. Litwack, and C. P. Bastl	C729
Calcium-dependent chloride channels in endosomes from rabbit kidney cortex W. B. Reeves and R. W. Gurich	C741
Role of protein kinase C in insulin activation of the Na-K pump in cultured skeletal muscle	C751
S. R. Sampson, C. Brodie, and S. V. Alboim Staurographica a protein kinese inhibitor, activates K.Cl actroperart in	CIOI
Staurosporine, a protein kinase inhibitor, activates K-Cl cotransport in LK sheep erythrocytes I. Bize and P. B. Dunham	C759
Regulation of α_{1B} -adrenergic receptor half-life: protein synthesis dependence and effect of norepinephrine	
N. J. Izzo, Jr., and W. S. Colucci	C771

Endothelial polyamine uptake: selective stimulation by L-arginine deprivation or	
R. G. Bogle, G. E. Mann, J. D. Pearson, and D. M. L. Morgan	C776
Modulation of intracellular calcium transients and dopamine release by neuropeptide Y in PC-12 cells X. Chen and T. C. Westfall	C784
Role of Na $^+$ -Ca $^{2+}$ exchange in agonist-induced changes in cytosolic Ca $^{2+}$ in vascular smooth muscle cells	
	C794
Na ⁺ -dependent Ca ⁺⁺ efflux mechanism of heart mitochondria is not a passive Ca ²⁺ /2Na ⁺ exchanger K. Baysal, D. W. Jung, K. K. Gunter, T. E. Gunter, and G. P. Brierley	C800
Primary structure and functional properties of an epithelial K channel H. Zhou, S. S. Tate, and L. G. Palmer	C809
Energy use by contractile and noncontractile processes in skeletal muscle estimated	
A. J. Baker, R. Brandes, T. M. Schendel, S. D. Trocha, R. G. Miller, and M. W. Weiner	C825
MODELING IN PHYSIOLOGY	
A mathematical model of a rabbit sinoatrial node cell S. S. Demir, J. W. Clark, C. R. Murphey, and W. R. Giles	C832
SPECIAL COMMUNICATION	_
Analysis of decaying unitary currents in on-cell patches of cells with a high membrane resistance J. H. Ravesloot, M. J. A. M. van Putten, K. Jalink, and D. L. Ypey	C853
RAPID COMMUNICATION	_
Differential acidic pH sensitivity of Δ F508 CFTR Cl $^-$ channel activity in lipid bilayers A. M. Sherry, J. Cuppoletti, and D. H. Malinowska	C784 C794 C800 C809 C825
ANNOUNCEMENTS	C876
APRIL 1994	
INVITED REVIEW	
Macromolecular crowding and confinement in cells exposed to hypertonicity $\it M.M.GarnerandM.B.Burg$	C877
Extrarenal tissue distribution of CHIP28 water channels by in situ hybridization and antibody staining H. Hasegawa, SC. Lian, W. E. Finkbeiner, and A. S. Verkman	C893
Mechanisms of heterologous agonist-stimulated phosphorylation of cholecystokinin receptor	C904
Acinar zonation of the hormonal regulation of cytosolic aspartate aminotransferase in the liver S. Feilleux-Duché, M. Garlatti, R. Burcelin, M. Aggerbeck, J. Bouguet,	0304
J. Girard, J. Hanoune, and R. Barouki Contractile properties and myosin phenotype of single motor units from neonatal rats	C911
A. G. Nelson and W. J. Thompson	
	polyamine depletion R. G. Bogle, G. E. Mann, J. D. Pearson, and D. M. L. Morgan Modulation of intracellular calcium transients and dopamine release by neuropeptide Y in PC-12 cells X. Chen and T. C. Westfall Role of Na ⁺ -Ca ²⁺ exchange in agonist-induced changes in cytosolic Ca ²⁺ in vascular smooth muscle cells Z. Zhu, M. Tepel, M. Neusser, and W. Zidek Na ⁺ -dependent Ca ²⁺ offlux mechanism of heart mitochondria is not a passive Ca ²⁺ /2Na ⁺ exchanger K. Baysal, D. W. Jung, K. K. Gunter, T. E. Gunter, and G. P. Brierley Primary structure and functional properties of an epithelial K channel H. Zhou, S. S. Tale, and L. G. Palmer Energy use by contractile and noncontractile processes in skeletal muscle estimated by ³¹ P-NMR A. J. Baker, R. Brandes, T. M. Schendel, S. D. Trocha, R. G. Miller, and M. W. Weiner MODELING IN PHYSIOLOGY A mathematical model of a rabbit sinoatrial node cell S. S. Demir, J. W. Clark, C. R. Murphey, and W. R. Giles SPECIAL COMMUNICATION Analysis of decaying unitary currents in on-cell patches of cells with a high membrane resistance J. H. Rauesloot, M. J. A. M. van Putten, K. Jalink, and D. L. Ypey RAPID COMMUNICATION Differential acidic pH sensitivity of ΔF508 CFTR Cl ⁻ channel activity in lipid bilayers A. M. Sherry, J. Cuppoletti, and D. H. Malinowska ANNOUNCEMENTS ANNOUNCEMENTS Extrarenal tissue distribution of CHIP28 water channels by in situ hybridization and antibody staining H. Hosegawa, SC. Lian, W. E. Finkbeiner, and A. S. Verkman Mechanisms of heterologous agonist-stimulated phosphorylation of cholecystokinin receptor Z. Zhu, M. Lutz, L. K. Gates, and L. J. Miller Acinar zonation of the hormonal regulation of cytosolic aspartate aminotransferase in the liver S. Feilleux-Duché, M. Garlatti, R. Burcelin, M. Aggerbeck, J. Bouguet, J. Girard, J. Hanoune, and R. Barouki Contractile properties and myosin phenotype of single motor units from neonatal rats

C925

M. E. Everts and T. Clausen

pH_i -dependent Cl-HCO $_3$ exchange at the basolateral membrane of frog retinal pigment epithelium $H.\ Lin\ and\ S.\ S.\ Miller$	C935
Acidification stimulates chloride and fluid absorption across frog retinal pigment epithelium J. L. Edelman, H. Lin, and S. S. Miller	C946
Potassium-induced chloride secretion across the frog retinal pigment epithelium J. L. Edelman, H. Lin, and S. S. Miller	C957
Differential effects of hyperthermia on macrophage interleukin-6 and tumor necrosis factor-α expression J. E. Ensor, S. M. Wiener, K. A. McCrea, R. M. Viscardi, E. K. Crawford, and J. D. Hasday	C967
17β-Estradiol attenuates voltage-dependent Ca ²⁺ currents in A7r5 vascular smooth muscle cell line F. Zhang, J. L. Ram, P. R. Standley, and J. R. Sowers	C975
Ultrastructural localization of nitric oxide synthase in canine small intestine and colon I. Berezin, S. H. Snyder, D. S. Bredt, and E. E. Daniel	C981
13-HODE increases intracellular calcium in vascular smooth muscle cells L. L. Stoll, M. R. Morland, and A. A. Spector	C990
Soluble polycations and cationic amphiphiles inhibit volume-sensitive K-Cl cotransport in human red cell ghosts $J.\ R.\ Sachs$	C997
Calcium signaling induced by bradykinin is synergistically enhanced by high K^+ in NG108 $-$ 15 cells SH. Chueh and LS. Kao	C1006
Luminal perfusion of isolated gastric glands S. J. Waisbren, J. Geibel, W. F. Boron, and I. M. Modlin	C1013
Protein turnover during metabolic arrest in turtle hepatocytes: role and energy dependence of proteolysis S. C. Land and P. W. Hochachka	C1028
Dietary protein-induced renal growth: correlation between renal IGF-I synthesis and hyperplasia E. Chin and C. A. Bondy	C1037
Cell volume control in vestibular dark cells during and after a hyposmotic challenge $P.\ Wangemann\ and\ N.\ Shiga$	C1046
Mechanism of sodium hyperabsorption in cultured cystic fibrosis nasal epithelium: a patch-clamp study T. C. Chinet, J. M. Fullton, J. R. Yankaskas, R. C. Boucher, and M. J. Stutts	C1061
Effect of brefeldin A on ADH-induced transport responses of toad bladder K. Weng and J. B. Wade	C1069
Length, force, and Ca ²⁺ -troponin C affinity in cardiac and slow skeletal muscle YP. Wang and F. Fuchs	C1077
Effects of CGRP, forskolin, PMA, and ionomycin on pH _i dependence of Na-H exchange in UMR-106 cells A. Gupta, C. J. Schwiening, and W. F. Boron	C1083
Interleukin-1 stimulates phosphatidic acid-mediated phospholipase D activity in human mesangial cells S. L. Bursten and W. E. Harris	C1093
Characterization and localization of epithelial Na ⁺ channels in toad urinary bladder T. R. Kleyman, P. R. Smith, and D. J. Benos	C1105
Extracellular Mg^2 +-dependent Na^+ , K^+ , and Cl^- efflux in squid giant axons $H.$ Rasgado-Flores, $H.$ Gonzalez-Serratos, and $J.$ DeSantiago	C1112

SPECIAL COMMUNICATION

Confocal microscopy to analyze cytosolic and nuclear calcium in cultured vascular cells $M.\ Burnier,\ G.\ Centeno,\ E.\ Burki,\ and\ H.\ R.\ Brunner$

RAPID COMMUNICATION

Protein kinase-independent inhibition of muscarinic K+ channels by staurosporine C. F. Lo and G. E. Breitwieser

C1128

LETTERS TO THE EDITOR

- Calcium uptake
 - B. Agostini and W. Hasselbach; E. Dumonteil, H. Barré, and G. Meissner

ANNOUNCEMENTS

C1134

C1133

No. 5. MAY 1994

INVITED REVIEW

Viral gene products and replication of the human immunodeficiency type 1 virus

C. D. Morrow, J. Park, and J. K. Wakefield

C1135

Control of H+-HCO3 plasma membrane transporters by urea hyperosmolality in rat medullary thick ascending limb

F. Leviel, M. Froissart, H. Soualmia, J. Poggioli, M. Paillard, and M. Bichara

C1157

Enhancement of gustatory nerve fibers to NaCl and formation of ion channels by commercial novobiocin

A. M. Feigin, Y. Ninomiya, S. M. Bezrukov, B. P. Bryant, P. A. Moore, M. Komai, M. Wachowiak, J. H. Teeter, I. Vodyanoy, and J. G. Brand

C1165

Decline in number of Na-K pumps on low-K+ sheep reticulocytes during maturation is modulated by L_p antigen Z.-C. Xu, P. B. Dunham, B. Dyer, and R. Blostein

C1173

Differential Ca2+ sensitivities of BK(Ca) isochannels in bovine mesenteric vascular smooth muscle

S. C. Sansom and J. D. Stockand

C1182

Skeletal muscle overload upregulates the sarcoplasmic reticulum slow calcium pump gene C1190

S. C. Kandarian, D. G. Peters, J. A. Taylor, and J. H. Williams

Identification and characterization of the rat intestinal epithelial cell (IEC-18) interleukin-1 receptor

D. B. Sutherland, G. W. Varilek, and G. A. Neil

C1198

β-Adrenoceptor activation slows high-frequency fatigue in skeletal muscle fibers of the rat

S. P. Cairns and A. F. Dulhunty

C1204

Ion transport asymmetry and functional coupling in bovine pigmented and nonpigmented ciliary epithelial cells

J. L. Edelman, G. Sachs, and J. S. Adorante

C1210

C1222

Loss of glucose transporters is an early event in differentiation of HD3 cells A. Mathew, M. Grdisa, P. J. Robbins, M. K. White, and R. M. Johnstone

Gene expression during phorbol ester-induced differentiation of cultured human

megakaryoblastic cells G. W. Dorn II, M. G. Davis, and D. D. D'Angelo

C1231

Shifts in type I fiber proportion in rat hindlimb muscle are accompanied by changes in HSP72 content

M. Locke, B. G. Atkinson, R. M. Tanguay, and E. G. Noble

C1240

Interactions between retinoic acid and 1,25(OH)₂D in mouse immortalized osteoblastic C1 cells

J. Chentoufi and P. J. Marie

C1247

Responses of \beta-adrenoceptor in rat soleus to phosphorus compound levels and/or unloading

Y. Ohira, K. Saito, T. Wakatsuki, W. Yasui, T. Suetsugu, K. Nakamura, H. Tanaka, and T. Asakura

C1257

Development of a H+-selective conductance during granulocytic differentiation of	
HL-60 cells A. Y. Qu, A. Nanda, J. T. Curnutte, and S. Grinstein	C1263
Neuropeptide Y stimulates hypertrophy of adult ventricular cardiomyocytes B. C. Millar, KD. Schlüter, XJ. Zhou, B. J. McDermott, and H. M. Piper	C1271
Aldosterone induces early activation and late accumulation of Na-K-ATPase at surface of A6 cells	61070
J. Beron and F. Verrey Modulation of Ca ²⁺ transients by photorelease of caged nucleotides in frog skeletal	C1278
muscle fibers J. A. Sanchez and J. Vergara	C1901
Developmental cell-specific regulation of Na ⁺ -K ⁺ -ATPase α_1 -, α_2 -, and α_3 -isoform	C1291
gene expression V. L. M. Herrera, T. Cova, D. Sassoon, and N. Ruiz-Opazo	C1301
NMR-sensitive fluorinated and fluorescent intracellular calcium ion indicators with	C1301
high dissociation constants R. E. London, C. K. Rhee, E. Murphy, S. Gabel, and L. A. Levy	C1313
Measurement of cytosolic free calcium in perfused rat heart using TF-BAPTA E. Murphy, C. Steenbergen, L. A. Levy, S. Gabel, and R. E. London	C1323
Endotoxin-stimulated alveolar macrophages impair lung epithelial Na ⁺ transport by an	
L-Arg-dependent mechanism C. G. Compeau, O. D. Rotstein, H. Tohda, Y. Marunaka, B. Rafii, A. S. Slutsky, and H. O'Brodovich	C1330
Role of cell volume variations in Na ⁺ -K ⁺ -ATPase recruitment and/or activation in	
ortical collecting duct N. Coutry, N. Farman, JP. Bonvalet, and M. Blot-Chabaud	C1342
Interaction of cardiac Na-Ca exchanger and exchange inhibitory peptide with	
membrane phospholipids T. R. Shannon, C. C. Hale, and M. A. Milanick	C1350
Atrial natriuretic peptide enhances activity of potassium conductance in adrenal	
glomerulosa cells M. B. Ganz, J. J. Nee, C. M. Isales, and P. Q. Barrett	C1357
Water channel vesicles from toad urinary bladder contain a family of proteins present in other tissues	
A. Paredes, D. M. Briscoe, C. K. Williams, A. Garcia-Perez, J. B. Wade, and H. W. Harris	C1366
pH-dependent inhibitory effects of Ca ²⁺ , Mg ²⁺ , and K ⁺ on Ca ²⁺ efflux mediated by sarcoplasmic reticulum ATPase	Cione
H. Wolosker and L. de Meis Effects of vanadate on MgATP stimulation of Na-Ca exchange support	C1376
kinase-phosphatase modulation in squid axons R. DiPolo and L. Beaugé	C1382
Prostaglandin E_2 synthesis after oxidant stress is dependent on cell glutathione content $S.\ L.\ Hempel\ and\ D.\ A.\ Wessels$	C1392
ESR spectral transition by arteriovenous cycle in nitric oxide hemoglobin of cytokine-treated rats	
H. Kosaka, Y. Sawai, H. Sakaguchi, E. Kumura, N. Harada, M. Watanabe, and T. Shiga	C1400
Bradykinin and angiotensin II: activation of protein kinase C in arterial smooth muscle B. S. Dixon, R. V. Sharma, T. Dickerson, and J. Fortune	C1406
Agonist-activated, ryanodine-sensitive, IP ₃ -insensitive Ca ²⁺ release channels in longitudinal muscle of intestine J. F. Kuemmerle, K. S. Murthy, and G. M. Makhlouf	C1421
Modulation by L-type Ca ²⁺ channels and apamin-sensitive K ⁺ channels of muscarinic	UITAI
responses in cat chromaffin cells G. Uceda, A. R. Artalejo, MT. de la Fuente, M. G. López, A. Albillos, P. Michelena, A. G. García, and C. Montiel	C1432

apical UTP, and [Cl] _i M. Haas and D. G. McBrayer	C1440
SPECIAL COMMUNICATION	
Detection and quantitation of EP ₃ prostaglandin E ₂ receptor mRNA along mouse nephrot segments by RT-PCR S. Taniguchi, T. Watanabe, A. Nakao, G. Seki, S. Uwatoko, and K. Kurokawa	C1453
RAPID COMMUNICATIONS	
Differential modulation of large-conductance K_{Ca} channels by PKA in pregnant and nonpregnant myometrium $G.$ Pérez and $L.$ Toro	C1459
Both CFTR and outwardly rectifying chloride channels contribute to cAMP-stimulated whole cell chloride currents E. M. Schwiebert, T. Flotte, G. R. Cutting, and W. B. Guggino	C1464
Hyperabsorption of Na $^+$ and raised Ca $^{2+}$ -mediated Cl $^-$ secretion in nasal epithelia of CF mice	
B. R. Grubb, R. N. Vick, and R. C. Boucher	C1478
ANNOUNCEMENTS	C1484
Structure and function of ryanodine receptors R. Coronado, J. Morrissette, M. Sukhareva, and D. M. Vaughan	C1485
	C1485
Isolation of a rat amiloride-binding protein cDNA clone: tissue distribution and regulation of expression K. Verity and P. J. Fuller	C1505
Antidiuretic hormone-responding nonselective cation channel in distal nephron epithelium (A6) Y. Marunaka, H. Tohda, N. Hagiwara, and T. Nakahari	C1513
Physiological role of Ca ²⁺ -activated and voltage-dependent K ⁺ currents in rabbit coronary myocytes	G1 F00
N. Leblanc, X. Wan, and P. M. Leung A Na ⁺ -sensitive cation channel modulated by angiotensin II in cultured intestinal myocytes V. L. A. Nouailhetas, J. Aboulafia, E. Frediani-Neto, A. T. Ferreira, and A. C. M. Paiva	C1523
In situ determination of $[\text{Ca}^{2+}]_i$ threshold for translocation of the $\alpha\text{-protein}$ kinase C isoform	
R. A. Khalil, C. Lajoie, and K. G. Morgan Integrin-mediated adhesive properties of uroepithelial cells are inhibited by treatment with bacterial toxins A. Elgavish, A. Pattanaik, K. Lloyd, and R. Reed	C1544
Regulation of endothelin-induced Ca ²⁺ mobilization in smooth muscle cells by protein kinase C YT. Xuan, OL. Wang, and A. R. Whorton	
Cytokines affect ion transport in primary cultured thick ascending limb of Henle's loop cells	C1560
B. A. Escalante, N. R. Ferreri, C. E. Dunn, and J. C. McGiff	C1568

C1568

Na-K-Cl cotransport in nystatin-treated tracheal cells: regulation by isoproterenol,

Anion-induced dynamic behavior of apical water channels in vasopressin-sensitive epithelia exposed to mercury		
A. Grosso, P. Jaquet, P. Brawand, and R. C. de Sousa	C1577	
Radiotracer studies of cystic fibrosis transmembrane conductance regulator expressed in Xenopus oocytes T. Ohrui, W. Skach, M. Thompson, J. Matsumoto-Pon, C. Calayag,		
and J. H. Widdicombe	C1586	
Ion transport mechanisms in rat parotid intralobular striated ducts M. Paulais, E. J. Cragoe, Jr., and R. J. Turner	C1594	
Angiotensin II stimulation of Na-H antiporter activity is cAMP independent in OKP cells A. Cano, R. T. Miller, R. J. Alpern, and P. A. Preisig	C1609	
Transepithelial phosphate transport in rabbit proximal tubular cells adapted to	C1603	
phosphate deprivation S. J. Scheinman, R. Reid, R. Coulson, D. B. Jones, and S. M. Ford	C1609	
Perforated-patch recording does not enhance effect of 3-isobutyl-1-methylxanthine on cardiac calcium current A. Kawamura and G. M. Wahler	01010	
	C1619	
Principal cell-specific antigen and hormonal regulatory network in RC.SVtsA58 cell line D. Prie, JC. Dussaule, B. Lelongt, M. Geniteau-Legendre, F. Chatelet, R. Cassingena, A. Vandewalle, and P. M. Ronco	C1628	
Regulation of cell volume and [Ca ²⁺] _i in attached human fibroblasts responding to anisosmotic buffers	Carono	
K. J. Bibby and C. A. G. McCulloch K ⁺ modulation of microglial superoxide production: involvement of voltage-gated	C1639	
Ca ²⁺ channels C. A. Colton, M. Jia, M. X. Li, and D. L. Gilbert	C1650	
Regulation of calcium channel current in A7r5 vascular smooth muscle cells by cyclic nucleotides		
J. N. Lorenz, D. R. Bielefeld, and N. Sperelakis	C1656	
Liver β-adrenergic receptors, G proteins, and adenylyl cyclase activity in obesity-diabetes syndromes N. Bégin-Heick	C1664	
Metabolic characteristics of α-toxin-permeabilized smooth muscle L. Trinkle-Mulcahy, M. J. Siegman, and T. M. Butler	C1673	
Synthetic lipopeptide $Pam_3CysSer(Lys)_4$ is an effective activator of human platelets $M.\ Berg,\ S.\ Offermanns,\ R.\ Seifert,\ and\ G.\ Schultz$	C1684	
ATP decreases acutely and reversibly transport through the paracellular pathway in human cervical cells G. I. Gorodeski, U. Hopfer, R. L. Eckert, W. H. Utian, B. J. De Santis,		
E. A. Rorke, and M. F. Romero Shortening velocity and ATPase activity of rat skeletal muscle fibers: effects of	C1692	
endurance exercise training J. M. Schluter and R. H. Fitts	C1699	
Multiple kinetic effects of β -adrenergic stimulation on single cardiac L-type Ca channels Y. Hirano, K. Suzuki, N. Yamawake, and M. Hiraoka	C1714	
Fructose 1,6-bisphosphate protects against D-galactosamine toxicity in isolated rat hepatocytes	C1722	
T. Roig, J. R. De Oliveira, R. Bartrons, and J. Bermúdez	C1722	
Anions that potentiate excitation-contraction coupling may mimic effect of phosphate on Ca ²⁺ release channel B. R. Fruen, J. R. Mickelson, T. J. Roghair, HL. Cheng, and C. F. Louis	C1729	
$\mathrm{Ca^{2+}}$ signaling in Sf9 insect cells and the functional expression of a rat brain M_{5}		
muscarinic receptor Y. Hu, L. Rajan, and W. P. Schilling	C1736	
Shrinkage-induced activation of Na+-H+ exchange in barnacle muscle fibers	01544	
B. A. Davis, E. M. Hogan, and W. F. Boron	C1744	

Polyamines increase Ca^{2+} sensitivity in permeabilized smooth muscle of guinea pig ileum $K.$ Swärd, $BO.$ Nilsson, and $P.$ Hellstrand	C1754
Formation of extensive canalicular networks by rat hepatocytes cultured in collagen-sandwich configuration E. L. LeCluyse, K. L. Audus, and J. H. Hochman	C1764
Cytochrome P-450 arachidonate metabolites affect ion fluxes in rabbit medullary thick ascending limb B. Escalante, D. Erlij, J. R. Falck, and J. C. McGiff	C1775
Heterogeneity of endosomal populations in the rat renal cortex: light endosomes $\it T. G. Hammond \ and \ P. J. Verroust$	C1783
${ m C_2C_{12}}$ cells: biophysical, biochemical, and immunocytochemical properties $D.~K.~McMahon,~P.~A.~W.~Anderson,~R.~Nassar,~J.~B.~Bunting,~Z.~Saba,~A.~E.~Oakeley,~and~N.~N.~Malouf$	C1795
SPECIAL COMMUNICATION	
Method for recovering ATP content and mitochondrial function after chemical anoxia in renal cell cultures	
R. B. Doctor, R. Bacallao, and L. J. Mandel	C1803
Subject Index to Volume 35 Author Index to Volume 35	C1813 C1827

